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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,065	10/19/2001	Stuart D. Sandberg	081513-64	7273
181	7590	06/14/2005	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/982,065

Applicant(s)

SANDBERG ET AL.

Examiner

Kevin Y. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12,15-22 and 25-30 is/are rejected.
- 7) ☒ Claim(s) 7,8,13,14,23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/19/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 3, 12, 17, 22, 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 12 and 22 each require that the supplemental updating to be performed “during medley.” However, the term “medley” takes on a meaning only when it is used in an DMT communication environment. Absent such a prerequisite, the term fails to limit the claimed subject in a definite and unambiguous manner. For the purpose of examination, the term is interpreted as “during actual data transmission” in light of the context of the subject matter of claim 1.

Likewise, Claims 3, 17 and 27 each recite an indefinite term “showtime.” For the same reason the term is interpreted as “during actual data transmission” in light of the context of the subject matter of claim 1.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5,7,10,11,12,15,17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Doron (6,778,599).

Claims 1 and 11.

Doron discloses a time-domain equalizer and method (Fig.6) comprising,

“a training module” (38,44,218) that uses an initial solution (212,214) for the coefficients of the time domain equalizer (see col.9, lines 45-48) and determines updated time domain equalizer coefficients by maximizing the number of bits per frame, see col. 9, lines 44-62, in the sense that the coefficients are continually updated as the actual data is received and a time domain equalizer (38) that receives the updated time domain equalizer coefficients.

Claims 2,12.

The claimed invention calls for the supplemental updating to be performed “during medley.” Since after the training period, the coefficients are updated during the actual data transmission, i.e., “during medley.”

Claims 3,17.

The claimed invention calls for the updated coefficients to be used “during showtime.” Since after the training period, the coefficients are updated during the actual data transmission, i.e., “during showtime.”

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Claim 4.

Doron discloses an echo canceller (32), see, Fig. 2. providing “a data matrix” to the training module.

Claims 5,15.

The equalizer 36 performs “additional training” based on the updated coefficients in that its coefficients are continuously updated using the previously updated coefficients while the actual data is received.

Claim 7,18.

Doron discloses the equalizer system to be used in a DSL communications. See col.6, lines 26-29.

Claim 10,20.

The equalizer of Doron continuously updates the coefficients while the actual data is received, thus the updated coefficients becoming the initial solution for the time domain equalizer for the following data.

Claim 19.

The equalizer of Doron receives “a data matrix.” See data input to the equalizer.

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5. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doron as applied to claim 5 above and in view of Chun (US 6,307,889) and Shapiro et al (US 6,870,888).

Doron discloses all the subject matter claimed except for “frequency domain equalizer training” and “signal to noise ratio measurements for bit loading.” Although not described in the Doron patent, a frequency domain equalizer is conventionally used in a DSL receiver as shown in Fig.4 of Chun and thus would have been obviously used for additional frequency domain equalization of the received data. Likewise, bit loading is a well known technique for assigning bits to subchannels according to each subchannel’s signal to noise ratio, which also represents “a channel frequency response,” during initialization for maximum channel efficiency, as described by Shapiro. See col.9, lines 16-43. Thus, it would have been obvious to one skilled in the art at the time the invention was made to perform signal to noise ratio measurements for bit loading for increasing the channel efficiency.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 21,22,25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doron (alone or in combination with Chun and Sharpiro et al) and further in view of Herzberg (US 6,459,678).

Doron discloses all the subject matter claimed, as explained above, except that the steps in the method is stored as information in an information storage media. Implementation of equalizer using a processor and stored instruction is well known in the art as evidenced by the Herzberg patent that describes that an equalizer adaptation can be implemented in any computer-readable medium. See col. 9, line 40 – col.10, line 5. Thus, it would have been obvious to one skilled in the art at the time the invention was made to implement the equalizer of Doron using instructions stored in a storage media as taught by Herzberg.

#### ***Allowable Subject Matter***

9. Claims 8,9,13,14,23,24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Information Disclosure Statement***

10. The information disclosure statement filed on 12-19-2002 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent

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application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been considered but an initialed copy of "1449" form will be provided to applicant upon a submission of the list by applicant..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kvk

KEVIN KIM  
PATENT EXAMINER

